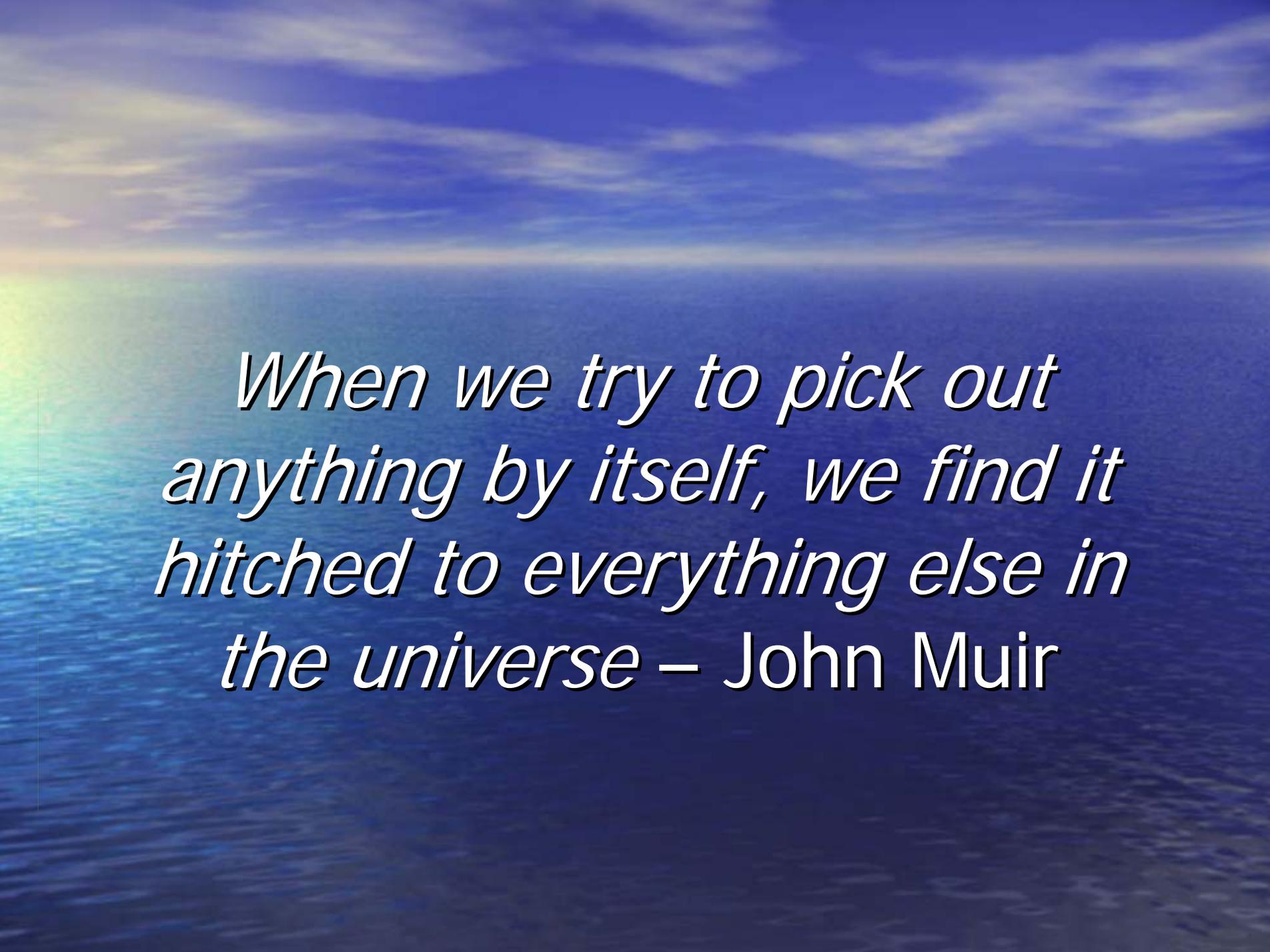


What Does Atmospheric Deposition Mean for Stormwater?

Geoff Brosseau
California Stormwater Quality Association
(CASQA)



*When we try to pick out
anything by itself, we find it
hitched to everything else in
the universe – John Muir*



In the beginning... the development
and legacy of 1970s environmental
protection regulations

Marching to a Different Drummer – Regulatory

Air

- Clean Air Act
- HAPs / TACs
 - Ozone, VOCs
 - NO_x, SO_x
 - Nutrients
- Dimensions
 - ppm (ng/m³)
 - Human health-driven

Water

- Clean Water Act
- POCs / PBTs
 - Heavy metals
 - Pesticides
 - Toxics (OCs, PCBs, PAHs, Dioxins/Furans)
- Dimensions
 - ppm, ppb, ppt (ng/l)
 - Aquatic life-driven

Lost in the Translation? – Terms

Air

- PM (Particulate matter)
- Emissions / Deposition
- Stationary vs. Mobile / Fugitive
- Airshed

Water

- Sediment
- Discharges
- Point vs. Non-Point
- Watershed

Scoping out the AQ / WQ Connection / Disconnection – San Francisco Bay

- 1987 - Loading of Toxic Contaminants, AHI
- 1991- Status and Trends, SFEP
- 1991 - Site-specific water quality objectives, San Jose
- 1992 - State of the Estuary, SFEP
- 1997 - Metals Control Measures Plan, SCVURPPP
- 1998 - Scoping Study of Air Deposition Monitoring Information Relevant to Water Quality, BASMAA

BASMAA Scoping Study of Air Deposition Monitoring Information Relevant to Water Quality

- Prompted by increasing concern about air pollution being a “source” of POCs
- Conducted preliminary review of both air pollution monitoring and air quality / water quality work
- Showed that air monitoring network was unsuited for water quality POCs and source control work

Subsequent work by stormwater agencies

- Research
 - Copper in brake pads (wear debris characterization / generation and whole environment modeling)
 - Mercury in fuels (sample and analyze fuels)

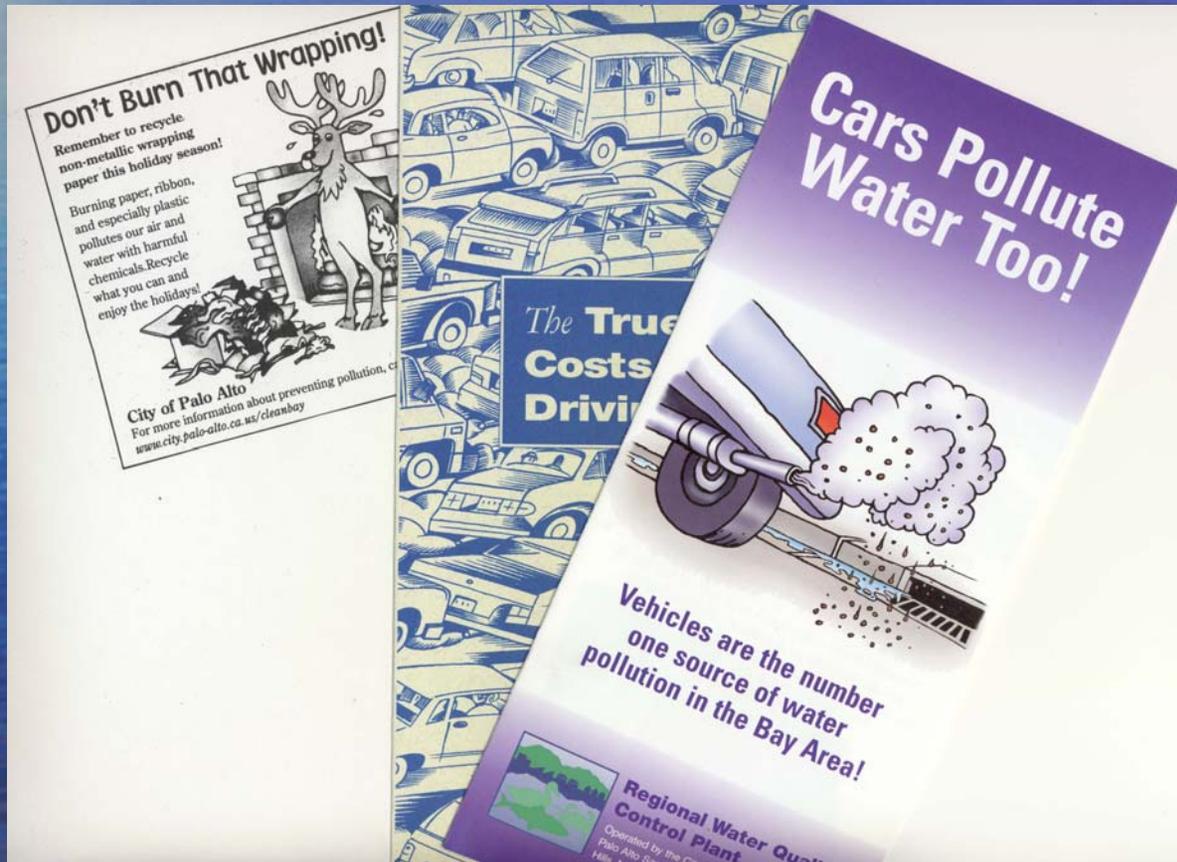
California Air
Resources Board
Mobile Laboratory



Subsequent work by stormwater agencies

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 - Mercury in fuels (sample and analyze fuels)
- Education
 - General Public
 - Advertising campaigns (Air pollution=water pollution)
 - Media pitches and public outreach (*Cars pollute water too— Spare the Air-Protect the Bay*, Wood burning, Wrapping paper)

AQ=WQ Public Education Items



Subsequent work by stormwater agencies

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 - Advertising campaigns (Air pollution=water pollution)
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 - Institutional
 - Informal staff-level meetings (AQ and WQ agencies)
 - Conference presentations
 - CASQA Workshops (2001 and 2005)

How the Gaps Affect Stormwater Quality Management – Regulatory

- NPDES stormwater permit provisions
 - Copper
 - PAHs
- TMDLs – Air deposition significant “source” to stormwater load
 - San Francisco Bay Mercury (~1/3 of load; ~2/3 of WLA) (1/2 load reduction required)
 - Los Angeles River and Ballona Creek Metals (Copper, Lead, and Zinc)

Recommendations for Addressing the Gaps

- Institutionalize vertical integration – literally and horizontal integration – functionally
 - Early / easy actions
 - Funding (State / Federal)
 - Systematic review and recommendations – Science, Regulations, Institutional
 - Cal/EPA Cross-media program / Partnerships with other organizations
- Rally around true source control – shared interest / benefit
 - Water quality agencies – Significant concerns with original pollution sources
 - Vehicles (Copper, PAHs)
 - Coal-fired plants, crematoria (Mercury)
 - Air quality agencies – Significant authority and experience with product control
 - Lead in fuel
 - USEPA – Growing involvement and influence with international sources
- Close the gaps vs. bridge the gaps or *hitch anything itself to everything else*



Thank you